

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Amendment of the Commission's)
Rules Concerning Low Power)
Radio and Automated Maritime)
Telecommunications Systems)
Operations in the 216-217 MHz Band)

WT Docket No. 95-56
RM-7784

To: The Commission

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COMMENTS OF SEA, INC.

SEA, Inc. ("SEA"), by its undersigned counsel, hereby files its comments in response to the FCC's Notice of Proposed Rulemaking ("Notice") in the above-captioned proceeding.^{1/}

INTRODUCTION

SEA, Inc., a wholly-owned subsidiary of Datamarine International, Inc., is a manufacturer of narrowband land mobile radio equipment. SEA has submitted comments in numerous rulemaking proceedings affecting land mobile and marine radio users. For over a decade, SEA has been involved in the development of narrowband technology at the technological and regulatory levels. SEA manufactures and markets narrowband linear modulation radio equipment used in voice and data operations in 5 kHz wide channels on the 220 MHz Land Mobile Radio frequencies. SEA currently ships type accepted narrowband products for the 20-222 MHz frequency band and the IVDS bands, and recently submitted the type acceptance filing for the market's first 220-222 MHz handheld portable, the SEA700.

^{1/} Notice of Proposed Rulemaking, WT Docket No. 95-56, released May 16, 1995.

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Thomas J. Keller, Esq.

VERNER, LIIPFERT, BERNHARD,
McPHERSON AND HAND, CHARTERED
901-15th Street, N.W.
Suite 700
Washington, Dc 20005-2301
(202) 371-6060

Attorney for SEA, Inc.

Norman R. Shivley
Senior Project Engineer
SEA, Inc.
7030 220th Street, S.W.
Mountlake Terrace, WA 98043

July 18, 1995

SEA's experience in pioneering systems and products for the VHF frequency bands perhaps makes the company uniquely qualified to discuss the introduction of new technology into a new radio service.

DISCUSSION

The Commission's Proposals

The Commission is proposing to modify the rules regarding the radio spectrum 216-217 MHz which was used in the past for Automated Maritime Telecommunications Systems (AMTS). This spectrum previously had been paired with the 218-219 MHz band for duplex AMTS use, but was "orphaned" when 218-219 was reallocated to the IVDS Radio Service (GEN Docket No. 91-2). The Commission issued an NOI which addressed many maritime telecommunications issues in 1992 (PR Docket No. 92-257), in which the question of what to do with 216-217 MHz was raised. Subsequently, petitions were filed which suggested the spectrum be used for some new applications. The specific suggestions were as follows:

1. Phonic Ear, Inc. (Phonic Ear), by petition, suggested using the spectrum for auditory assistance systems and health aids.^{2/}
2. PRONET, Inc. (PRONET) requested 6 channels for electronic tracking systems to enable law enforcement to track stolen goods by means of

^{2/} See Notice at 1.

a signal emitted by miniature transmitters attached to the goods.^{3/}

3. WATERCOM and ACBL advocated point-to-point, fixed communications for network control of AMTS stations.^{4/}

In this proceeding, the Commission proposes to allow the above-suggested applications and to authorize the new radio services for shared use of the band on a secondary, non-interference basis.

The Commission seeks specific comment on the proposed rules and on the following topics: (a) the feasibility of employing non-channelized emissions between 216.0125 and 216.7375 MHz, (b) the broadening or narrowing of the scope, eligibility, or permissible uses of the Low Power Radio Service (LPRS), (c) the advantages and disadvantages of channel sharing between AMTS and LPRS eligibles, and (d) technical rules to avoid interference to television receivers tuned to TV channel 13.

Feasibility of employing non-channelized emissions between 216.0125 and 216.7375 MHz

SEA urges the Commission to consider a 5 kHz narrowband channel plan for the entire 216-217 MHz band instead of

^{3/} Id. at 2.

^{4/} Id. at 2.

maintaining the 25 kHz channel spacing^{5/}alluded to in the Notice. The reasons for doing so are manifold and compelling. An obvious benefit in a 5 kHz channel plans would be to multiply the available number of channels by a factor of five. Therefore, 200 new channels could be made available instead of just 40. The greater number of means a larger potential user base and therefore greater economies of scale which would yield lower product costs.

SEA notes that the FCC reallocated the 220-222 MHz band as a proving ground for 5 kHz narrowband technology. Services using this technology are now being offered to the dispatch mobile wireless market all over the country. In addition, the Commission's recent decision to reform the PLMRS below 800 MHz with reduced channel spacings^{6/}indicates a trend to increase spectrum capacity by taking advantage of current and future capabilities of narrowband technology. It would seem that reallocating any frequency band for any new service and instituting a 25 kHz channel plan reflects "old" thinking.

Even though the proposed LPRS emission standard (proposed ¶ 95.1043) contains language that permits smaller channel spacings, SEA contends there are a number of reasons why this does not go far enough. First, the non-compulsory nature of the provision

5/ The frequency band in question is currently a 25 KHz-spaced band in accordance with 47 C.F.R. ¶ 80.385.

6/ See Report and Order and Further Notice of Proposed Rulemaking, PR Docket No. 92-235, June 15, 1995. The rule changes in this R&O express a transition towards 6.25 kHz channel spacings.

includes no incentive to use the more spectrally efficient approach. SEA notes that the option of "technical flexibility"^{2/} at 800 MHz has never produced a narrowband 800 MHz radio. Second, the benefits expressed with regard to more channels/economies/lower cost would be undermined. Third, simply allowing a 25 kHz channel licensee the option of dividing his or her channel into five 5 kHz channels would create special problems in a co-channel (frequency re-use) environment. This is particularly problematic in a shared-use band. Since a 5-channel 5 kHz licensee could have a co-channel neighbor using 25 kHz technology, a transmission from a single 5 kHz channel could cause interference to the 25 kHz systems's receiver. Likewise, a single transmission from the 25 kHz licensee could cause interference to all five of the narrowband receivers. In a 5 kHz channel plan environment, any single transmission would have a lower probability of causing interference to a co-channel user.

If, for whatever reason, the Commission is not inclined to adopt a 5 kHz channelization plan for the 216-217 MHz band, then, at the very least, the Commission should consider creating some sort of an incentive for users to employ more efficient technology. In this regard, the Commission might consider proposals along the lines of those recently set forth in the Report and Order and Further Notice of Proposed Rulemaking in PR Docket No. 92-235 (the "refarming" proceeding involving the private land mobile radio bands). There, the Commission

^{2/} See 47 C.F.R. ¶ 90.645(e).

specifically noted that the current shared regulatory environment for those bands does not contain "the proper incentives to encourage efficient spectrum usage," and that "introducing market-based incentives into these bands will help to encourage more efficient spectrum use while allowing users to make the equipment choices which best address their needs by attaching an economic cost to inefficient use of the spectrum and promoting the use of more efficient technologies. Report and Order and Further Notice of Proposed Rulemaking in PR Docket No. 92-235, released June 23, 1995 at para. 110. Incentives similar to those proposed in that proceeding might be tried here, as well, if the Commission is not inclined to adopt a narrowband requirement for the new services at 216-217 MHz. In any event, SEA continues to believe that the better course is to mandate the use of narrowband equipment at 216-217 MHz because here, unlike the situation in PR Docket No. 92-235, the Commission is dealing with new services, and for all practical purposes, new spectrum.

SEA maintains that 5 kHz narrowband products perform equivalently to 25 kHz FM products. The telemetry applications referred to in the Notice can be easily handled by narrowband techniques. SEA's new SEA700 narrowband handheld portable radio,^{8/} designed for the 220 MHz band, includes technology that could readily be applied to a narrowband channelized band at 216-217 MHz. This product demonstrates the miniaturization potential of narrowband technology.

^{8/} Type acceptance pending.

Broadening or narrowing of the scope, eligibility or permissible uses of the LPRS

The applications mentioned in the Notice are listed in the chart below. All, with the exception of auditory assistance, make use of essentially itinerant low power transmitters which convey data to a base receiver.

Summary of Applications

<u>Application</u>	<u>Base Station</u>	<u>"Subscriber" Unit</u>	<u>Considerations</u>
Auditory Assistance	Transmitter	Receiver	Hi-fi Continuous tx
Patient Monitoring	Receiver	Transmitter	Telemetry Continuous tx
Health Aids	Receiver	Transmitter	Telemetry Bursty tx
LETS	Receiver	Transmitter	Telemetry Bursty tx Low data rate Micro tx

SEA believes the auditory assistance application is not well suited for this frequency band. See Appendix A of these Comments for SEA's position on 216-217 MHz auditory assistance. As can be seen from the foregoing chart, all the other above applications share the common traits of miniature low power portable transmitters for use as "subscriber"^{2/} units.

Medical telemetry, or wireless patient monitoring, and health care aids applications, it would seem, require a dedicated

^{2/} SEA realizes that many uses will be non-commercial in nature and that the term "subscriber" may be inappropriate. That term has been used, nevertheless, for the sake of convenience to describe the unit deployed by the user.

set-aside of channels. In order to be assured that interference can be controlled, hospitals and health care providers need channels that are known to be used only for their particular application. Because the monitoring of a patient's vital signs is a very serious undertaking, SEA recommends that the Commission set aside specific channels in this band for medical telemetry.

The law enforcement tracking system (LETS) application is a valid one and the assignment of the Channels 19 and 20 in the band exclusively for this purpose has genuine merit. SEA notes this spectrum represents ten (10) 5 kHz channels.

Advantages and disadvantages of channel sharing between AMTS and LPRS eligibles

SEA does not believe sharing of all these channels among all of the proposed services is in the interest of the ultimate licensees. We believe that specific channels should be set aside for the medical telemetry, LETs and AMTS applications for the reasons described in the previous section. The non-commercial and critical nature of the medical telemetry and law enforcement tracking applications, SEA believes, justify narrow eligibility requirements, as well. Remaining channels can be shared so long as the licensees are aware of the interference potential and use the channels for communications that are not critical in nature.

Technical rules to avoid interference to television receivers
tuned to TV channel 13

SEA notes that there are only 67 TV Channel 13
broadcasters^{10/} in the U.S. and Puerto Rico. Because of the low
power nature of the services proposed for the 216-217 MHz band,
it seems highly unlikely that interference to channel 13
reception would be a significant problem.


CONCLUSION

For the foregoing reasons, SEA respectfully submits that the
Commission should adopt rules for the new services at 216-217 MHz
which are consistent with the views expressed herein.

Respectfully submitted,

SEA, Inc.

By:


Thomas J. Keller, Esq.
VERNER, LIIPFERT, BERNHARD,
McPHERSON AND HAND, CHARTERED
901-15th Street, N.W. - Suite 700
Washington, Dc 20005-2301
(202) 371-6000

Norman R. Shivley
Senior Project Engineer
SEA, Inc.
7030 220th Street, S.W.
Mountlake Terrace, WA 98043

Dated: July 18, 1995

Attachment: Appendix A

^{10/} According to the current issue of the TV and Cable Fact
Book, there are 72 allocations for channel 13 in the U.S.
and Puerto Rico. Five of these allocations are not in use.

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on this 18th day of July, 1995, caused copies of the foregoing "Comments" to be served by first class mail, postage prepaid to the following:

Regina Keeney
Federal Communications Commission
2025 M Street, N.W. - Room 5002
Washington, D.C. 20554

Robert H. McNamara
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W. - Room 5322
Washington, D.C. 20554

Roger Noel
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W. - Mail Stop 1700C2
Washington, D.C. 20554



Deirdre A. Johnson